

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method to forward network data in a data processing system, comprising:
  - (a) receiving network data;
  - (b) separating the network data into portions which will be modified and into portions which will not be modified;
  - (c) storing both portions of the network packet in a local memory;
  - (d) forwarding the modifiable portions of the network data to a cache associated with a processing element requesting at least the modifiable portion of the data;
  - (e) determining a next processing element destination of the ~~modifiable portion~~ network data;
  - (f) ~~modifying the modifiable portions within the requesting processing element~~ transferring the portion of the network data that are not modified to a next memory subsystem of the next processing element destination;
  - (g) modifying the modifiable portions within the requesting processing element; ~~writing back the modified portion of the network data to the destination bypassing the local memory~~
  - (h) writing back the modified portion of the network data to the next processing element destination independently of transferring the

nonmodifiable portion of the network data, and bypassing the local memory.

2. (Original) The method of claim 1, wherein the modifiable portion of the network data is a packet header of one network protocol which is modified to that of another network protocol.
3. (Original) The method of claim 2 wherein one and/or another network protocol is ATM.
4. (Original) The method of claims wherein one and/or another network protocol is ethernet.
5. (Original) The method of claim 2 wherein one/and or another network protocol is PPP, point-to-point protocol.
6. (Original) The method of claims 2 wherein one/and or another network protocol is IP, internet protocol.

7. (Currently Amended) The method of claim 2, further comprising:
  - (a) translating an address if the requesting processing element and the next processing element destination have different addresses of the local memory.
8. (Currently Amended) The method of claim 1, wherein the modification comprises updating an address to that of the next processing element destination.
9. (Original) The method of claim 1, wherein the modification occurs in a network processor.
10. (Original) The method of claim 1, wherein the modification occurs in a local processing element.
11. (Original) The method of claim 1, wherein the modification occurs in an embedded processor in an application specific integrated circuit, ASIC.
12. (Currently Amended) An apparatus for data communications, comprising:
  - (a) a network interface through which to receive incoming data comprised of at least one packet, the data packet having a modifiable portion and a portion that need not be modified;

- (b) a local memory connected to the network interface, the local memory for receiving the data and storing the modifiable portion from the portion that need not be modified;
- (c) ~~a modifier which updates the modifiable portion of the data packet~~ a bus interface connected to the local memory which forwards the portion of the data packet that need not be modified to an interconnect fabric, independent of the modifiable portion of the data packet, to a next processing element system;
- (d) ~~a bus interface~~ a modifier which updates the modifiable portion of the data packet and forwards the updated modifiable portion of the data packet to the bus interface that transfers the updated modifiable portion of the data packet to the interconnect fabric, independent of the portion of the data packet that need not be modified, to the next processing element system; and
- ~~(e) an interconnect fabric connected to the bus interface by which to forward the modifiable portion and independent of the portion of the data that need not be modified to its destination.~~

13. (Original) The apparatus of claim 12, wherein the incoming data is digital electrical and/or optical data.

14. (Original) The apparatus of claim 12, wherein the incoming data is analog electrical and/or optical data.
15. (Currently Amended) A memory bypass mechanism, comprising:
  - (a) means to receive optical and/or digital data;
  - (b) means to separate the received data into a modifiable portion and a non-modifiable portion;
  - (c) means to store the received data in a ~~first~~ memory associated with a means to modify the modifiable portion of the received data;
  - (d) means to forward the modifiable portion of the data to a ~~a~~ the modifying means;
  - (e) means to forward the non-modifiable portion to a next memory of a destination means to receive the optical and/or digital data destination;
  - (f) means to modify the modifiable portion; and
  - (g) means to forward the modified portion of data directly to ~~its destination~~ the next memory of the destination means bypassing storing the modified portion in the ~~first~~ memory associated with a means to modify the modifiable portion of the received data.

16. (Original) The memory bypass mechanism of claim 15, wherein the modifiable portion of the received data is a header stating a network protocol of the data and/or a destination address of the received data.
17. (Original) The memory bypass mechanism of claim 16, wherein the received header is of a first network protocol and the modified header is a second network protocol.
18. (Original) The memory bypass mechanism of claim 17, wherein the first and second network protocols are selected from the group consisting of: asynchronous transfer mode, ethernet, Internet protocol, and Point-to-Point protocol.
19. (Original) The memory bypass mechanism of claim 15, wherein the modifying means is a processing element in a network processor.
20. ~~(Cancelled) The memory bypass mechanism of claim 19, wherein the destination is a different processing element in the network processor.~~
21. ~~(Cancelled) The memory bypass mechanism of claim 15, wherein the destination is a second memory.~~